2010

Hanson River Watch 2009-2010

INTRODUCTION: SAM

We are the Hanson RiverWatch Group From Hanson Middle School. For the past three years, groups of grade eight students have been working with Dr. Curry and Kim McCoy collecting data from the same study sites on the Indian Head River

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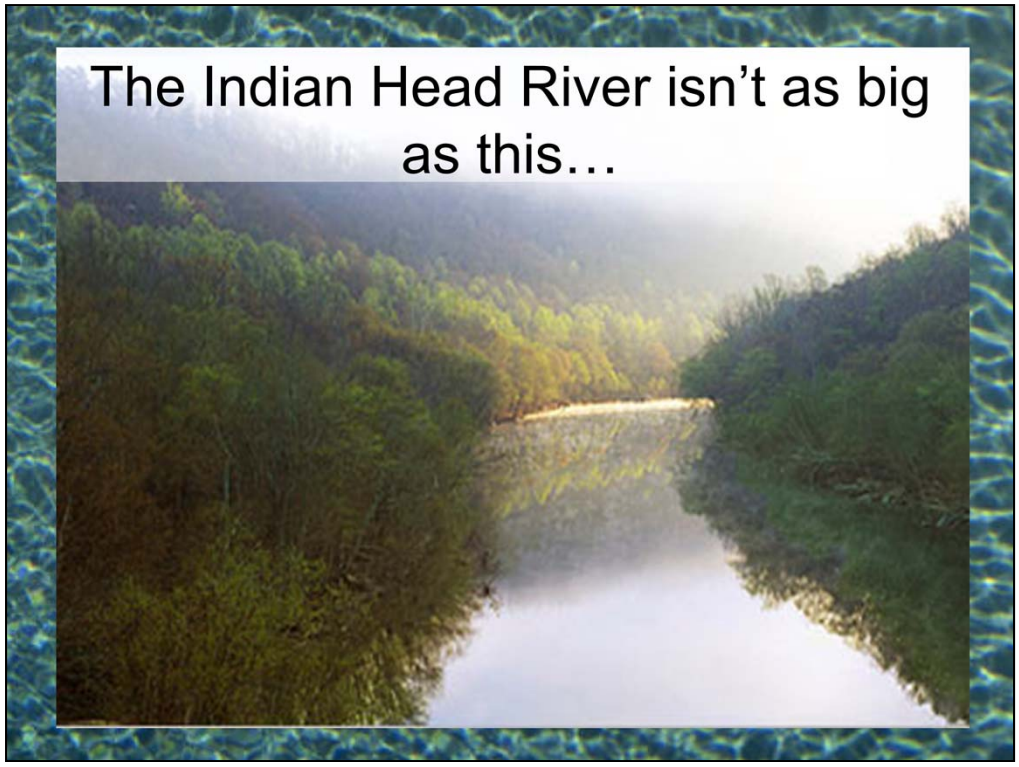

SAM:

The Indian Head River isn't as big as this…

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SAM :

Or as pretty as this one…

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SAM;

But at least its not as messed up as this one

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SAM:

You won’t find fish this size

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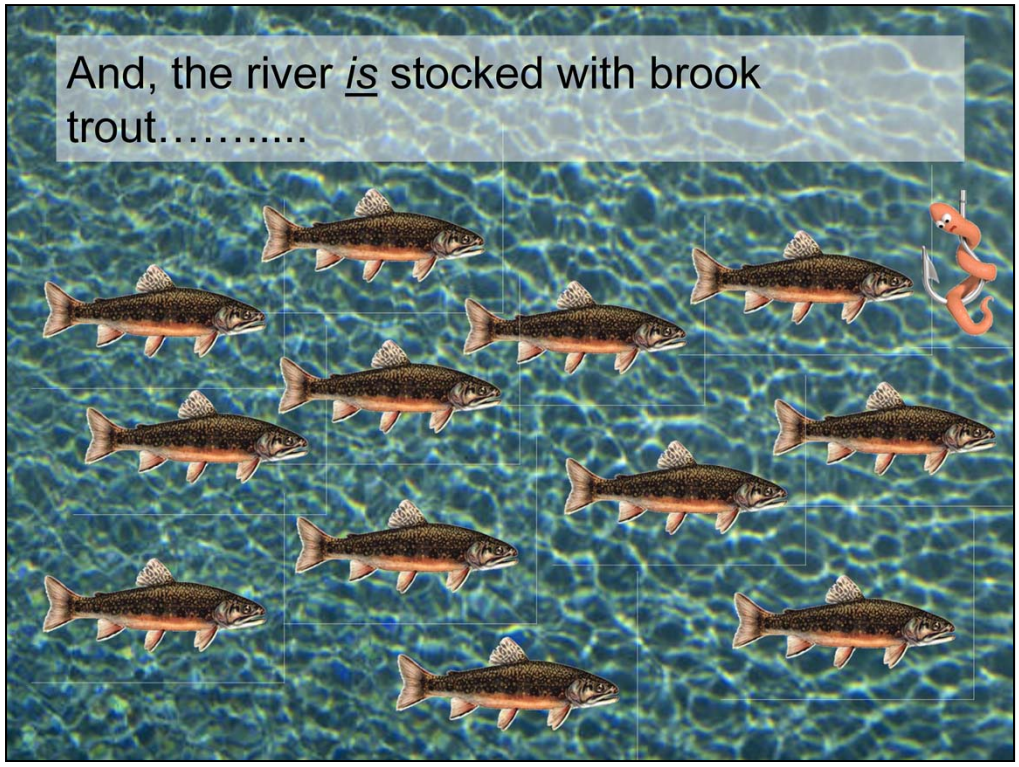

TYLER:

But the river is stocked with brook Trout

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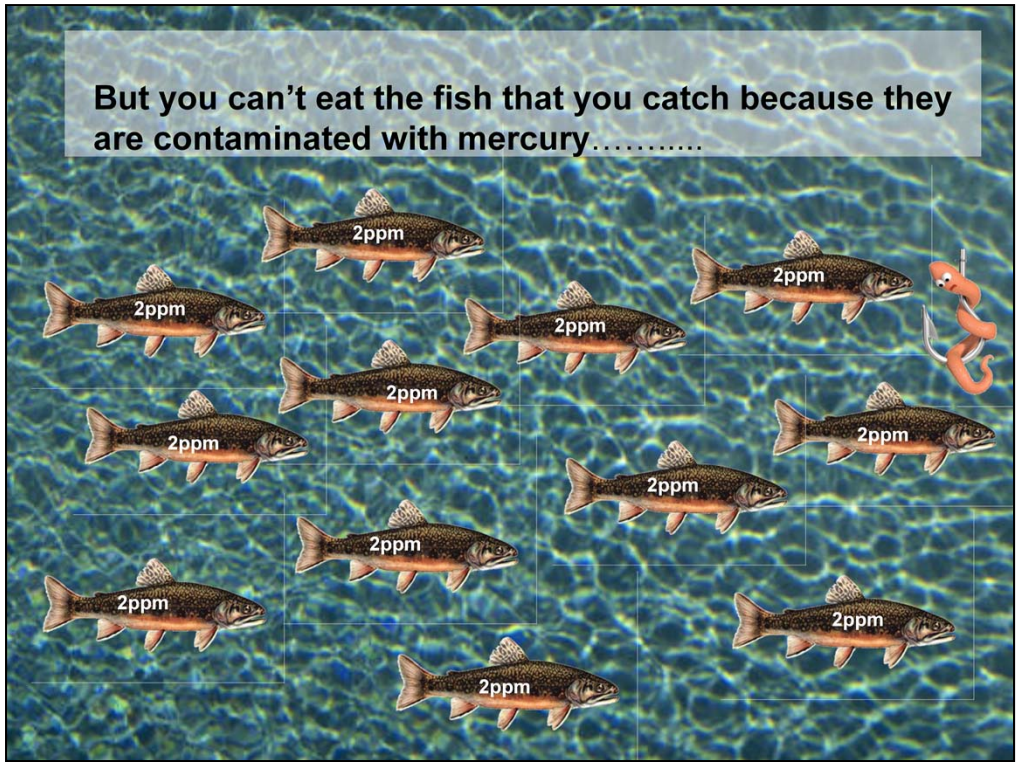

TYLER:

The only problem is that you can't eat the fish that you catch because they are contaminated with Mercury.

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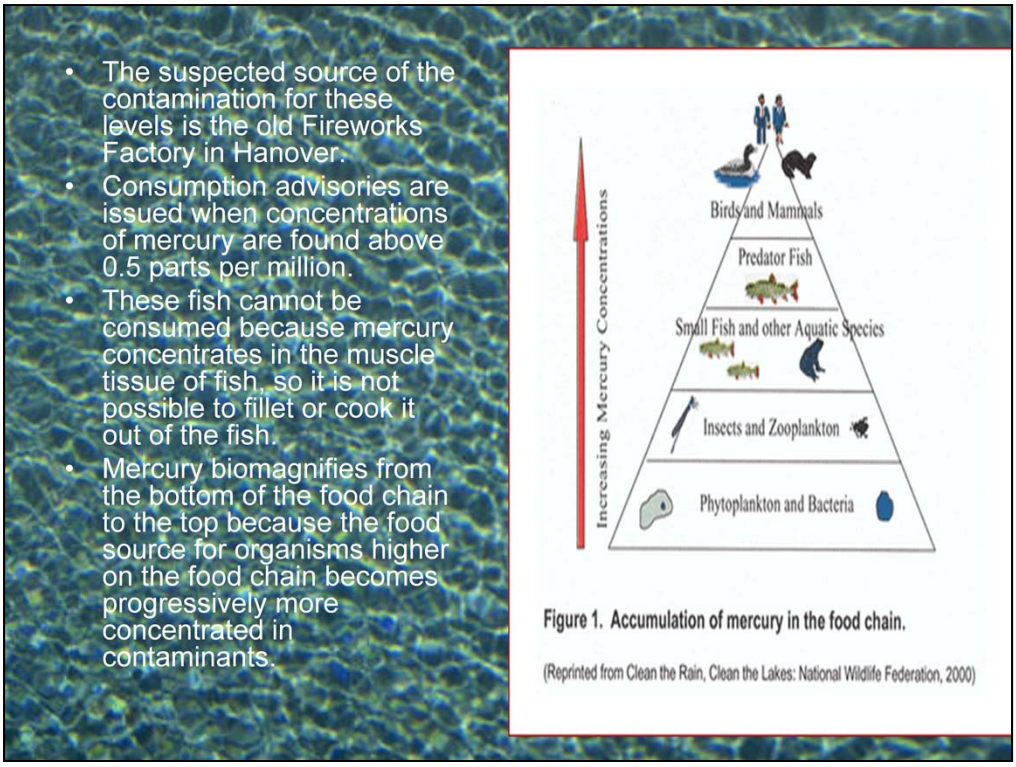

TYLER:

The suspected source of the contamination for these levels is the old Fireworks Site in Hanover .

Consumption advisories are issued when concentrations are found above 0.5 parts per million

These fish cannot be consumed because mercury concentrates in the muscle tissue of fish, so it is not possible to fillet or cook it out of the fish

Mercury biomagnifies from the bottom of the food chain to the top because the food source for organisms higher on the food chain becomes progressively more concentrated in contaminants.

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TYLER: I'm Tyler Kindy

Sam:

Brendan

Hayden

Emily

Alan

Dan

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Hayden:

We tested at the same two sites this year . At Broadway St,. In Hanson
and at Curtis Crossing on the Hanover/Pembroke Line

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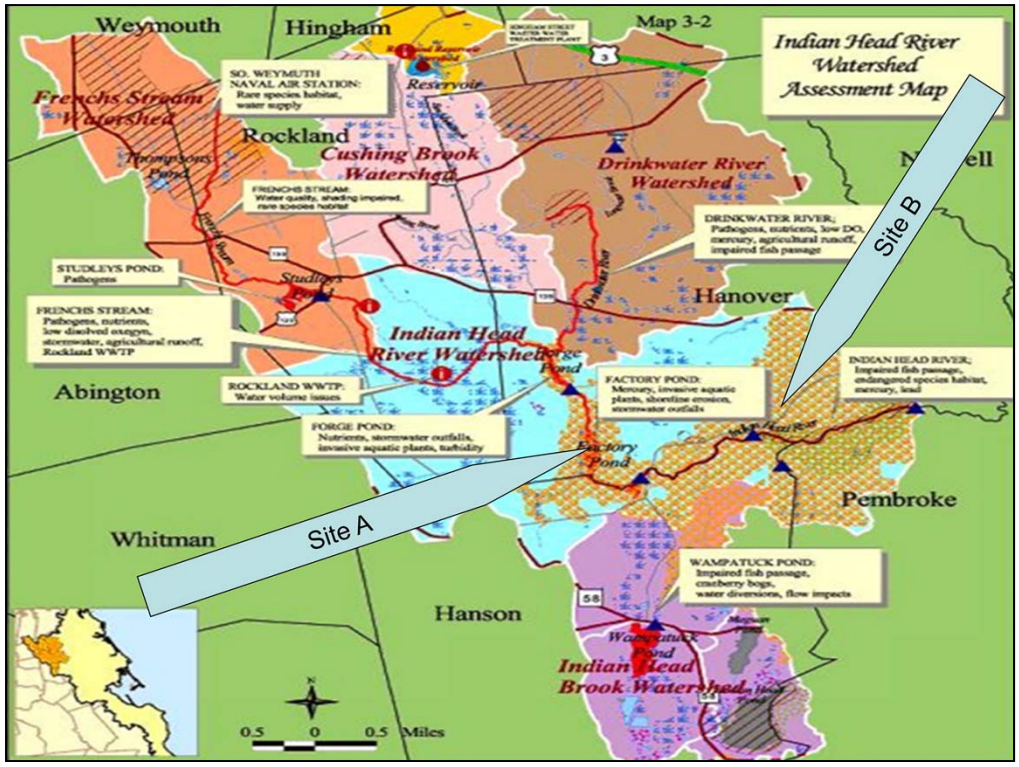
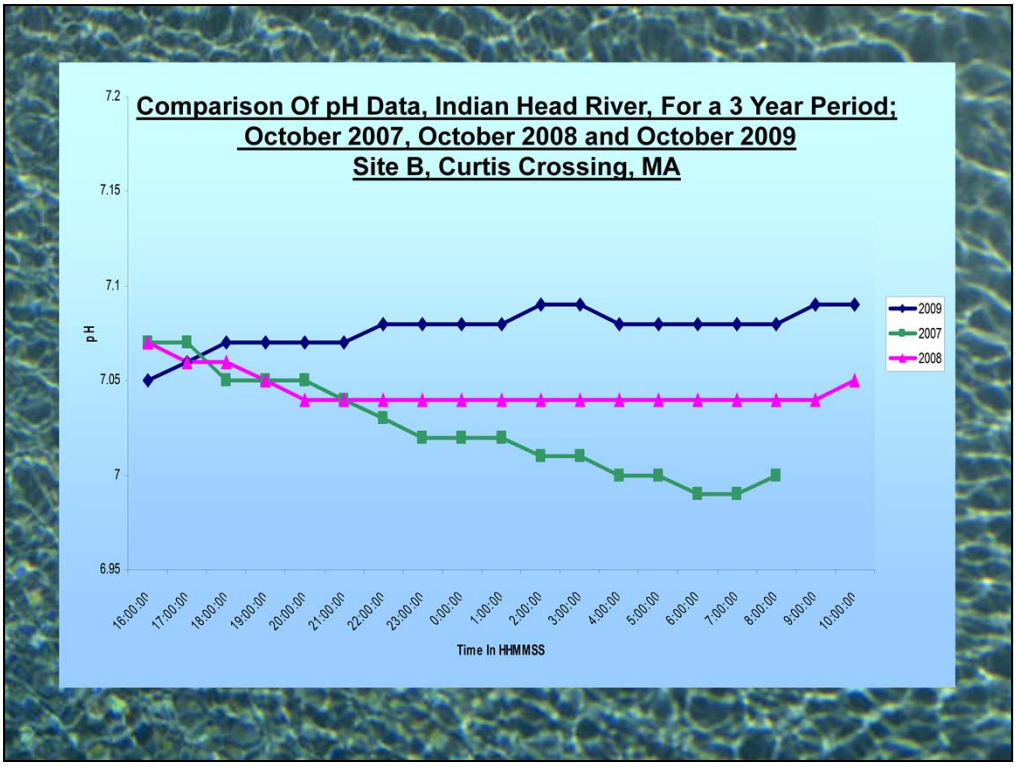


Hayden:

This map marks our two study sites. The EPA reports contaminants upsteam of Factory Pond including:

- High turbidity
- Pathogens
- Metals … and
- high levels of nutrients in both the Drinkwater Stream and French's stream



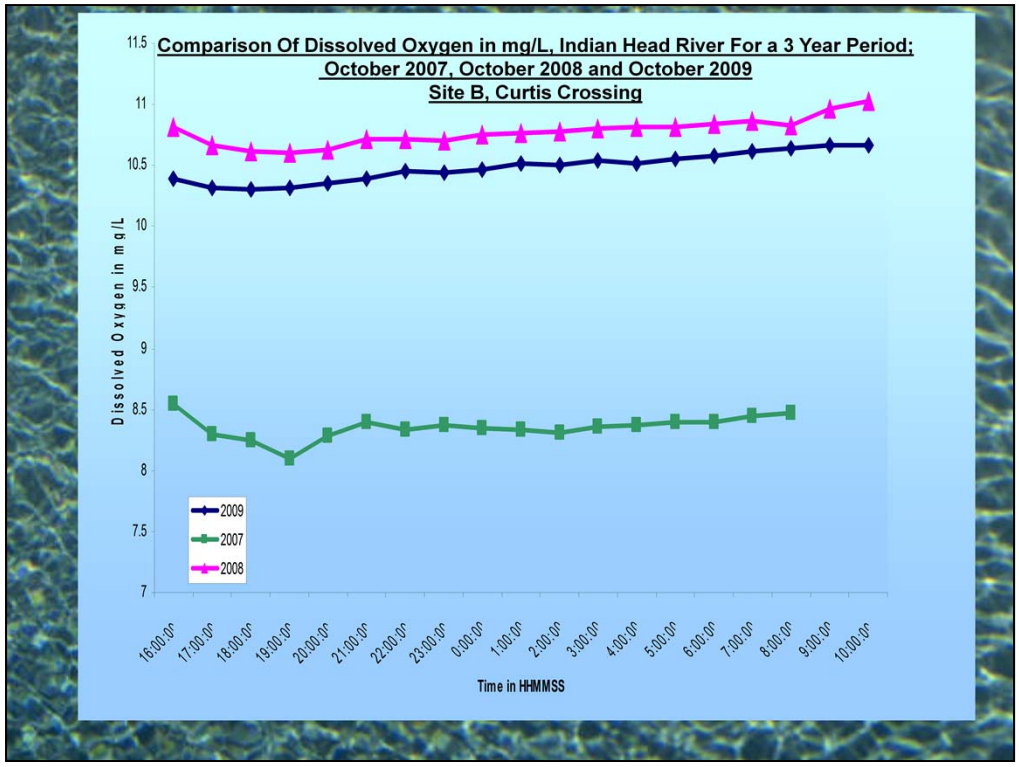
BRENDAN:

This year we decided to compare three year's of data; 2007,2008 and 2009.

All of the data for these three years was collected in the month of October.

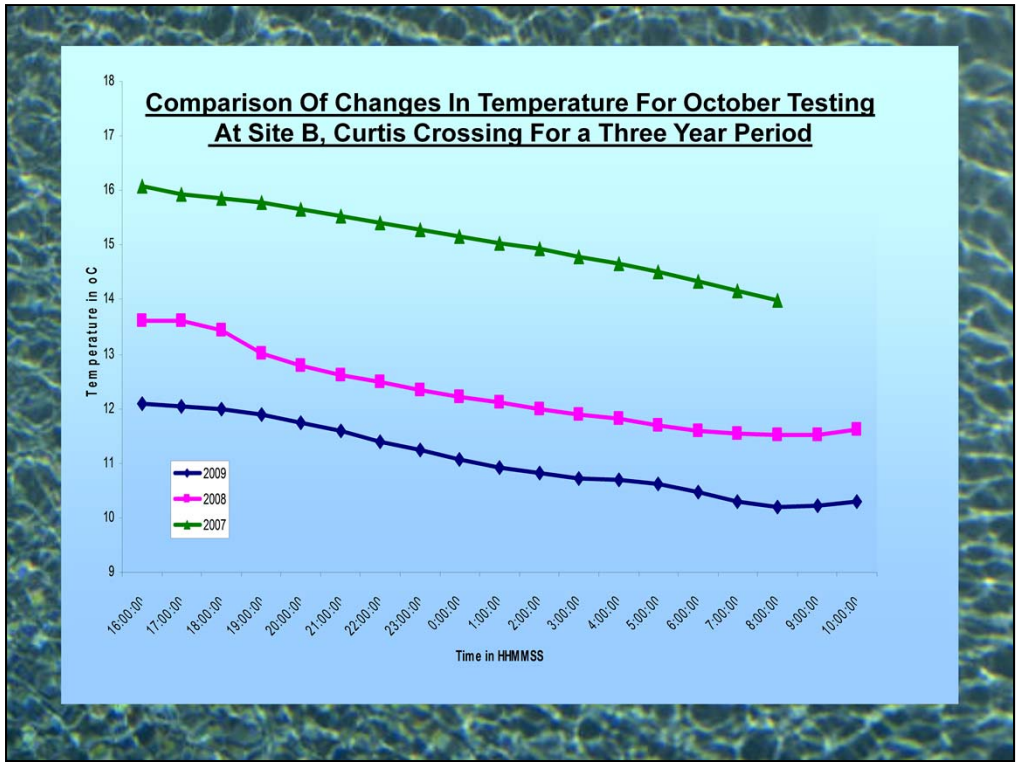
For the next six graphs, 2007 is the green line, 2008 is the pink line and 200 9 is the blue line.

This first graph shows the changes in pH over the three year testing period.



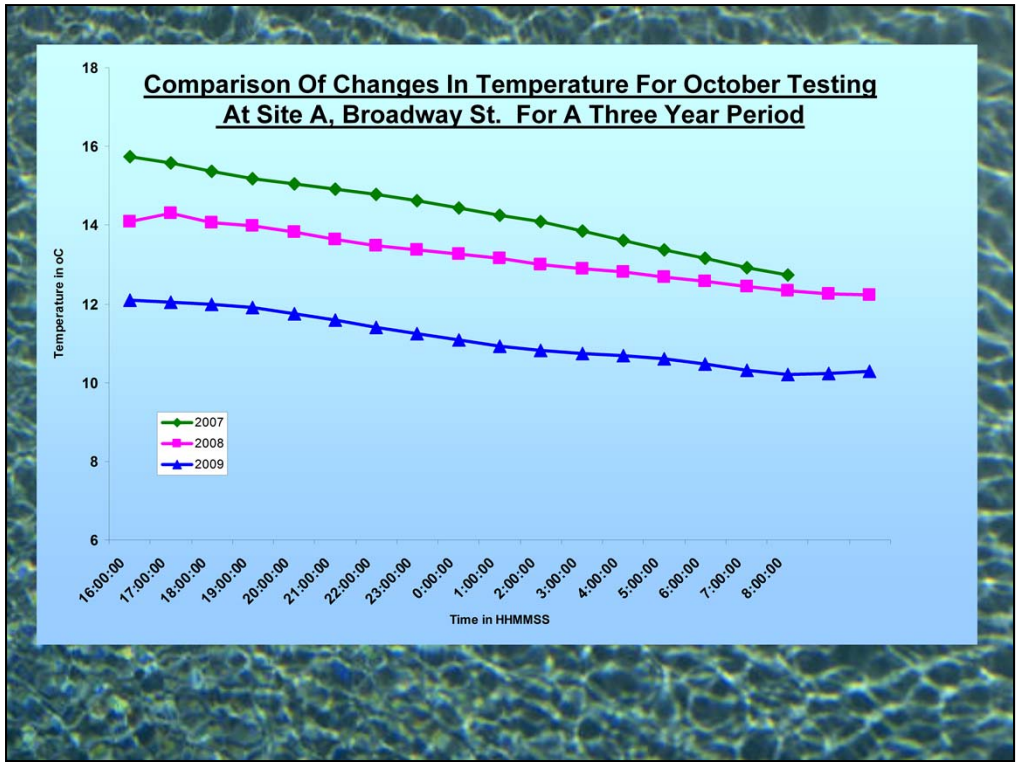
BRENDAN

Dissolved oxygen levels in 2007 are significantly lower than those in 2008 and 2009. This could be due to higher discharge measurements in 2008 and 2009.



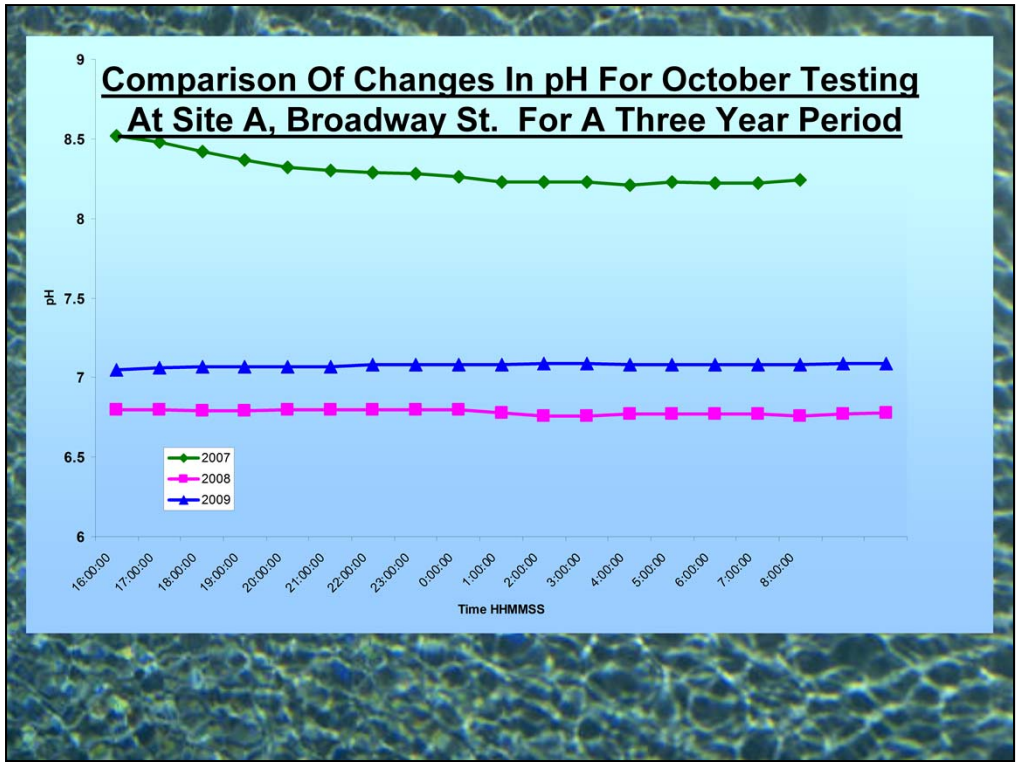
BRENDAN

Even the temperature of the river was warmer in 2007, probably because of the lower levels of water.



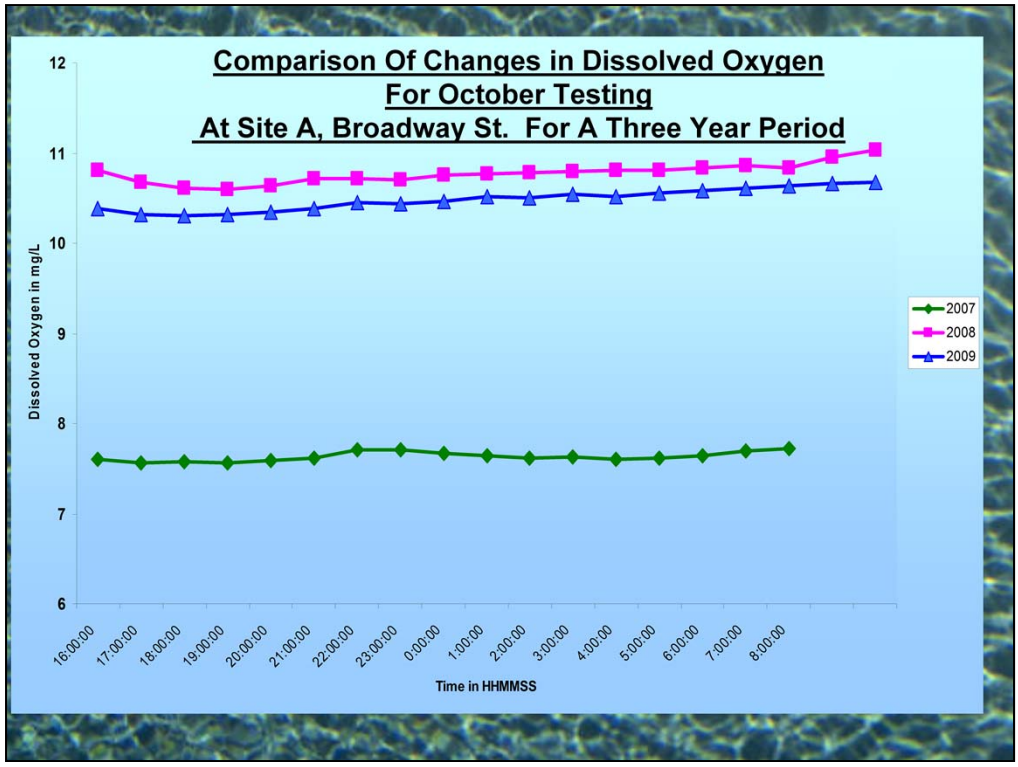
EMILY

We saw the same trend in temperature at Site A as we did at Site B.



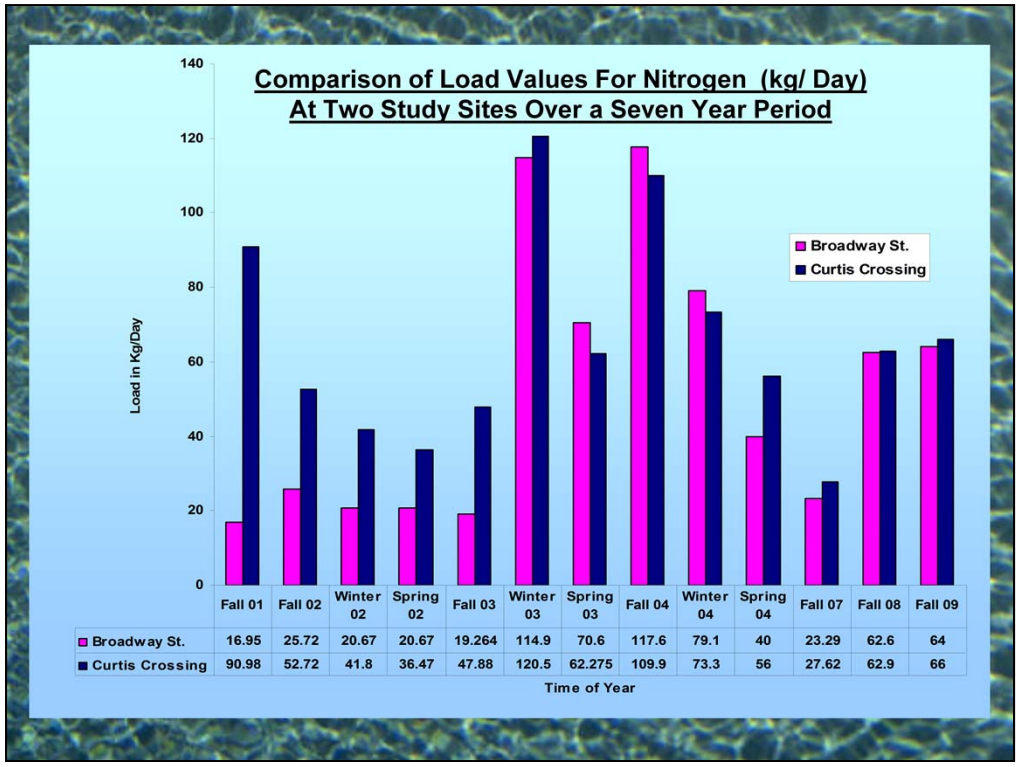
EMILY

In 2007, we observed that the pH was kind of high. But, in the last three years of testing, it seems pH has come closer to normal as a result of rising water levels.



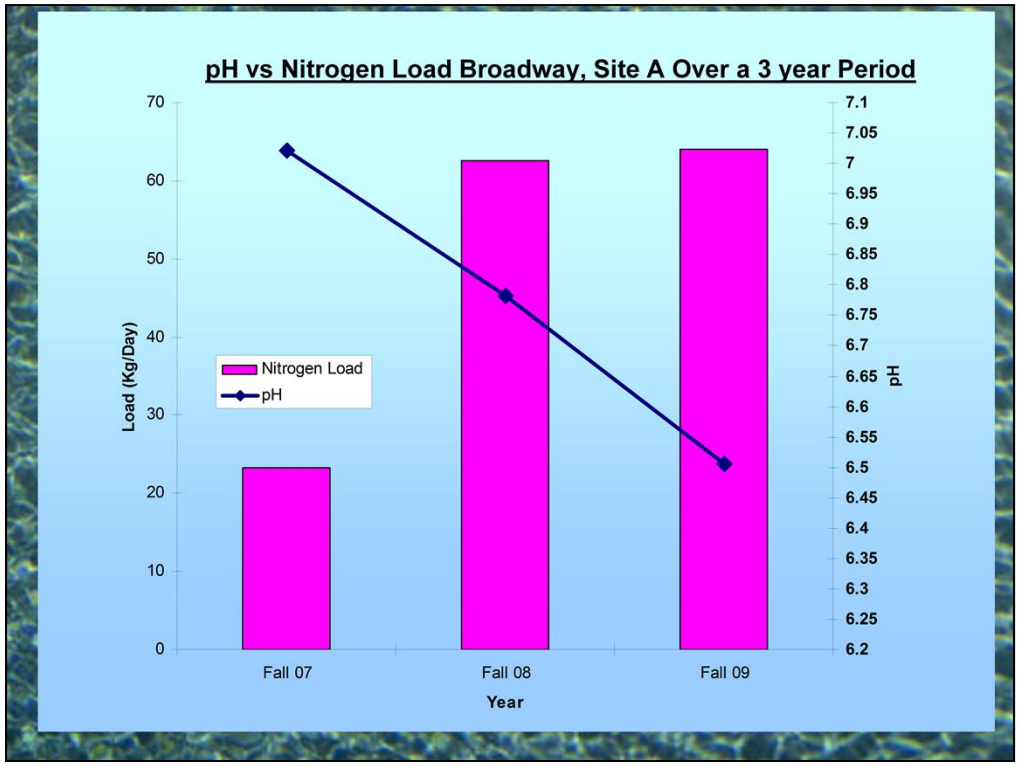
EMILY

Finally, as with the other data we observed, dissolved oxygen levels were down at this site as well in 2007.



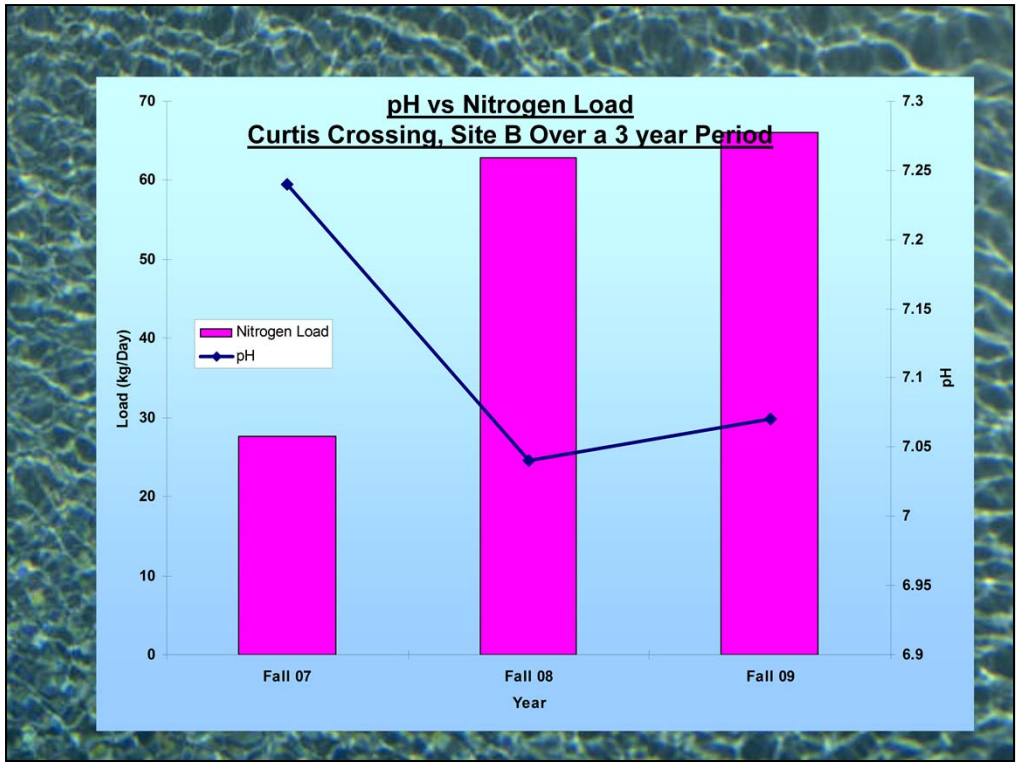
Hayden

This is nitrogen load over a seven-year period. You can see that in 2007, the load was low, however it seems to be increasing over the last few years with the increase in water levels.



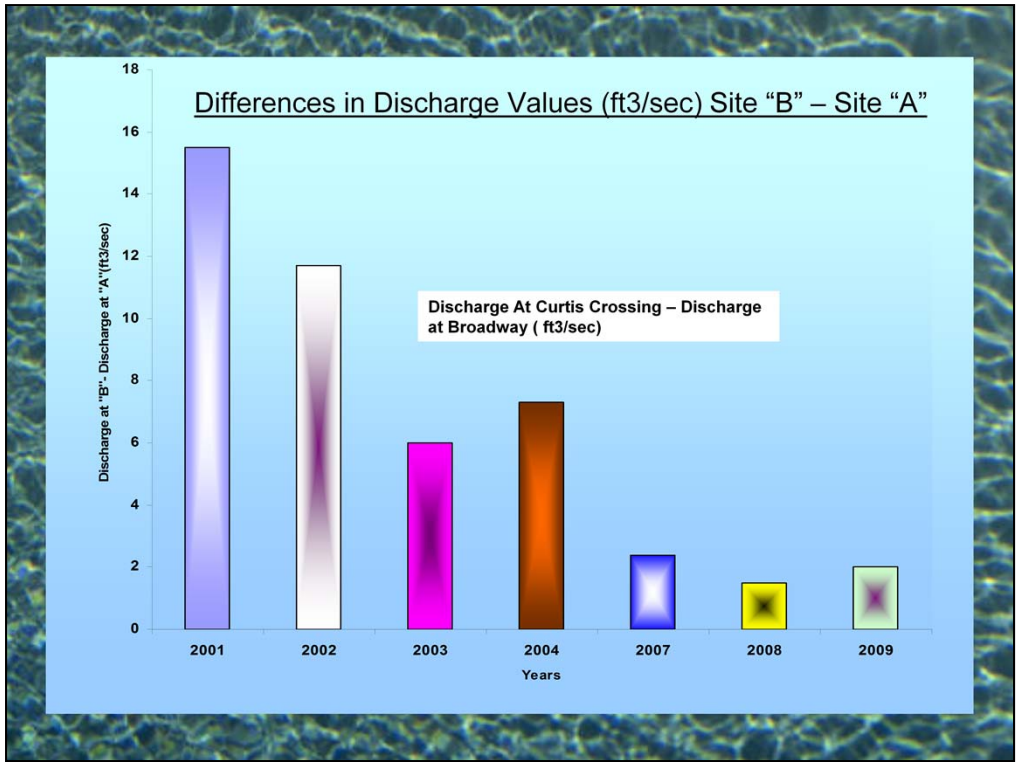
HAYDEN

We also noticed that pH seems to be higher when nitrogen load is lower.



HAYDEN

This is a similar graph to Site B, but it doesn't seem to be as neat a correlation.



SAM

This is discharge at Site A minus discharge at Site B. Our hypothesis is that two housing developments were built on either side of the river in 2003 and 2004 and may be drawing water out between Sites A and B.

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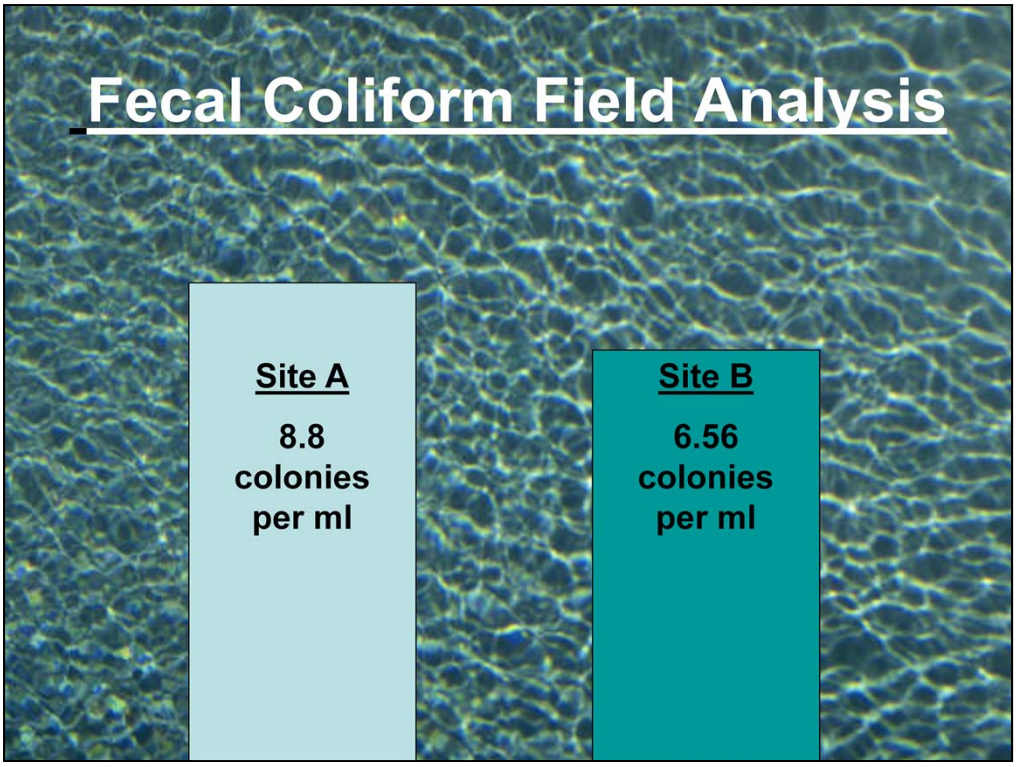

ALAN

These are the fecal Coliform for our two study sites. Samples were collected in March. High water levels have yilded the largest number of colonies seen in these studies.

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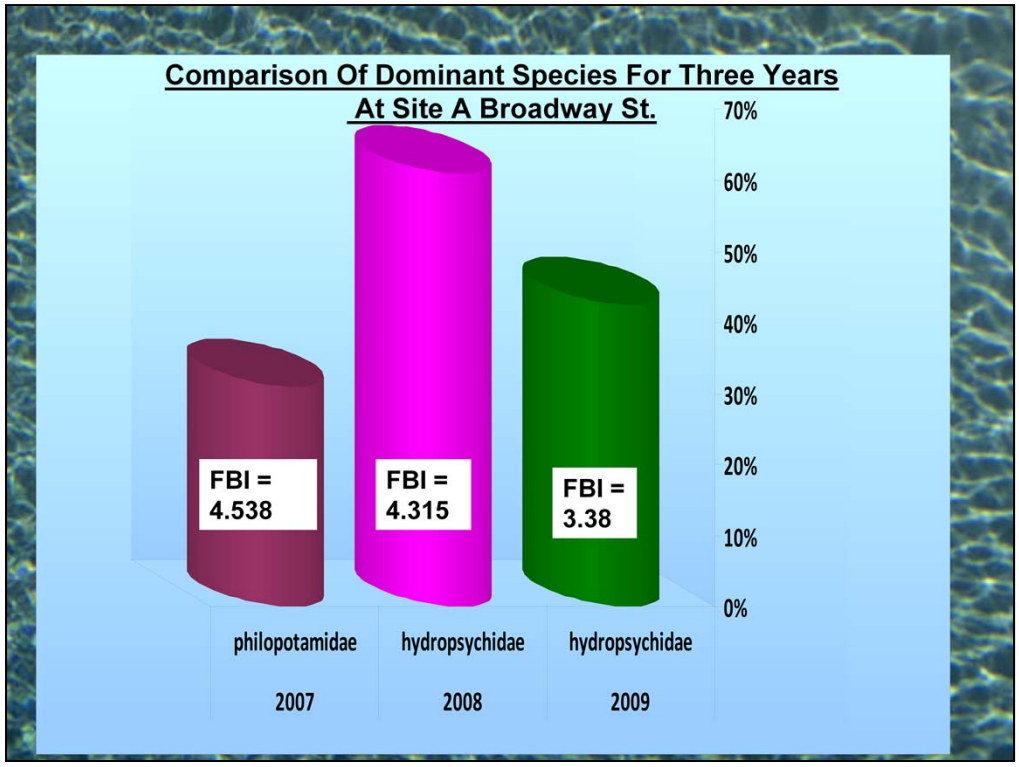

ALAN:

We counted 350 macroinvertebrates from both Site A and Site B and followed the procedure used in 2007 and 2008. We did not have to use Density Adjustment Factors for our sample because we counted just about everything in both of the samples. Caddis fly larvae remain the dominant species at both sites A and B as in previous years

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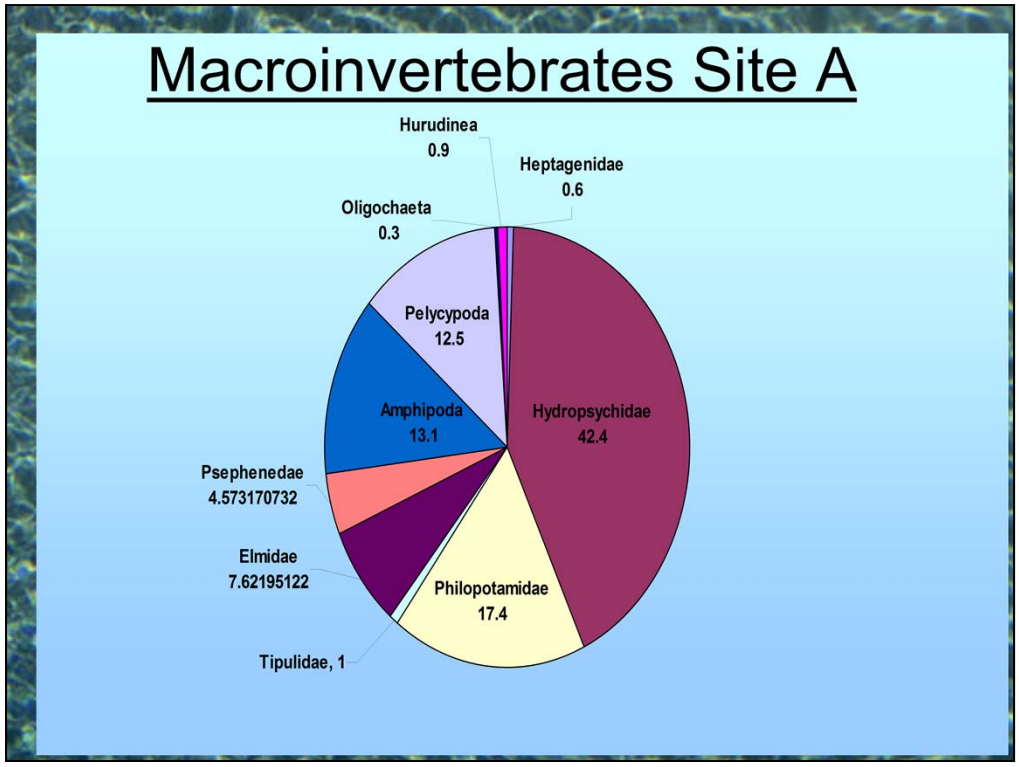

Dan:

The biodiversity at Site A is higher that it is at Curtis Crossing.

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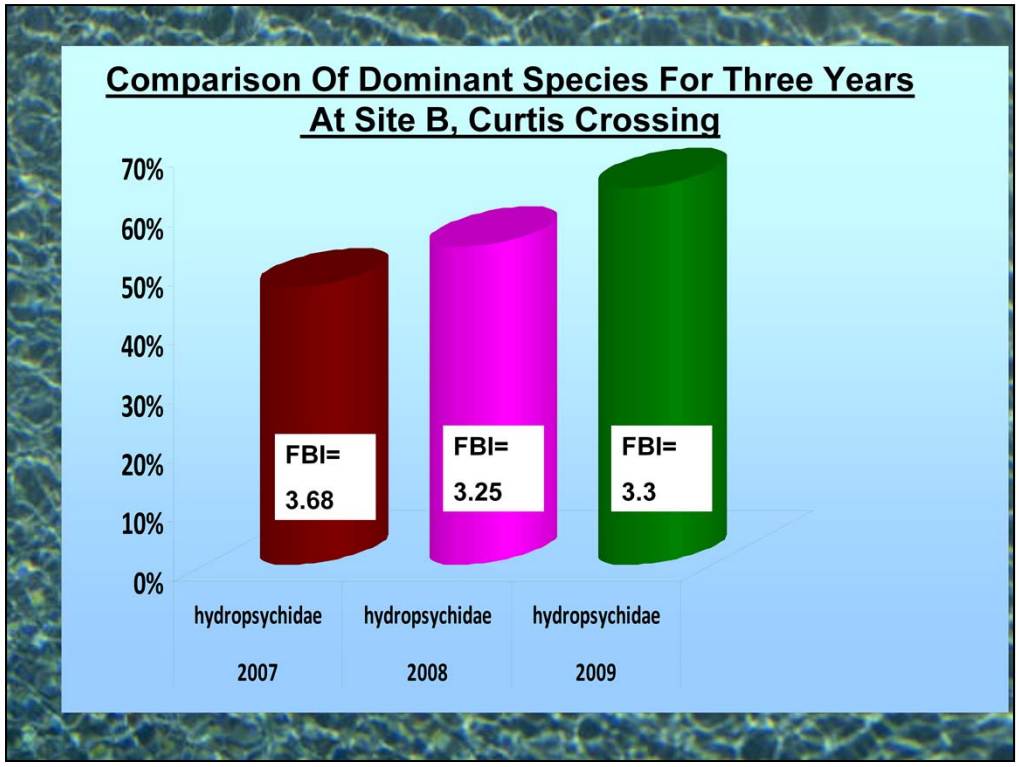

DAN:

The hydropsychids Have been the dominant species for all of the three years that this part of the river has been under scrutiny

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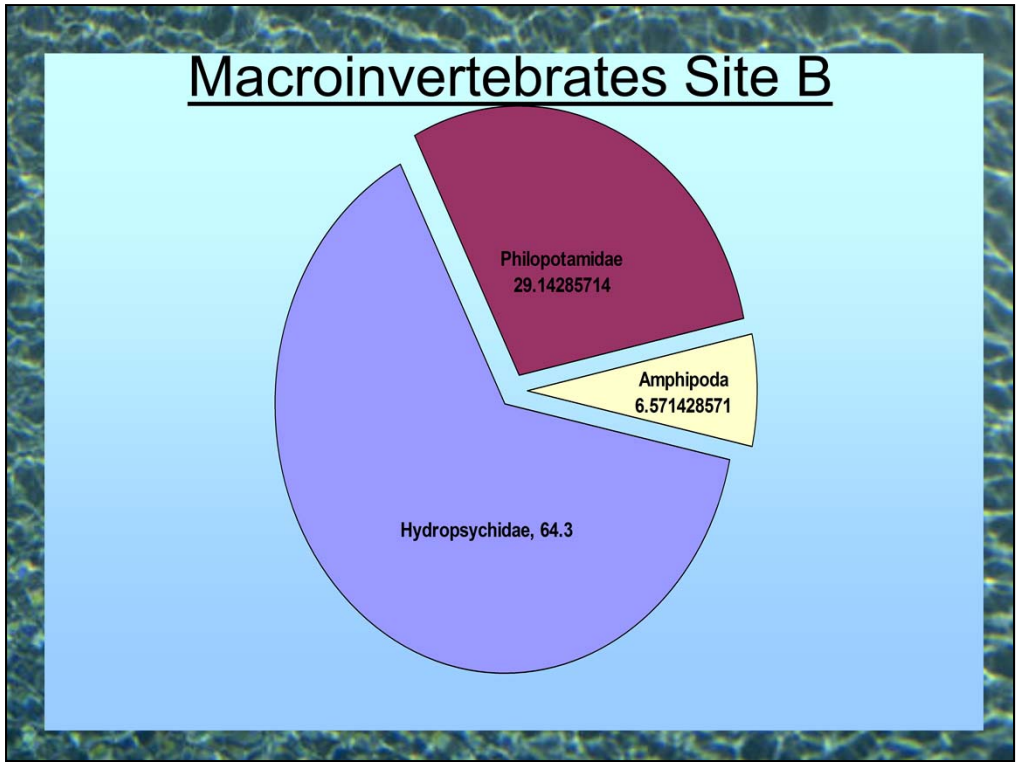

Dan:

Unlike Site A, there was not a lot of biodiversity at site B, however, low numbers of pollution tolerant organisms help keep the biotic index low.

Dan:

One thing was clear r at site B, there were ***a lot of caddisflies***. Rocks that we picked were almost completely covered with nets like this one.

TYLER ….. Read, the click

We would like to thank all of the people who made this experience possible; Dr. Curry, Kim McCoy and Ms. Kofton, our teacher.

The Indian Head River has seen many different lives over the years. Like all rivers, it is an ecosystem constantly changing due to natural and man made forces. Over the course of this study, students, including us, have observed data consistent with these changes.

Especially on our minds are

- **high nitrogen loads**
- **unexpected changes in discharge between site A, Broadway St. and site B, Curtis Crossing.**
- **reported mercury contamination coming from Factory Pond**

It's easy to see when a river is impaired like the one in our fourth slide. It's not so easy when things look good on the outside but invisible threats lurk just below the surface. Thanks to programs like the Watershed Lab, students and adults can become more informed about our water resources.

Thank you